OK TO ENTER: /H.J./ (05/12/2008)



## AMENDMENTS TO THE SPECIFICATION

In the specification of the Application, please amend original paragraph 0008 (paragraph 0009 as published) as hereinafter indicated.

> [0008] In one aspect of the invention, a method of operating a vehicle computer model having vehicle information and path information therein includes the steps of determining a rear side slip angle of a vehicle computer model[[,]]; determining a look ahead point[[,]]; when the rear side slip angle is greater than a threshold, determining a look ahead scale factor[[,]]; when the rear side slip angle is greater than the threshold, increasing the look ahead point as a function of the look ahead scale factor[[,]]; when the rear side slip angle is less than the threshold, maintaining the look ahead point[[,]]; when the vehicle model is off target, determining a steering wheel angle input to the computer model as a function of an error between the look ahead point and the intended path[[,]]; and operating the computer model with the steering wheel angle input.

Please also amend original paragraph 0009 (paragraph 0010 as published) in the specification as hereinafter indicated.

> [0009] In a further aspect of the invention, a simulation system for simulating an operation of an automotive vehicle includes an input providing vehicle information and path information and a controller having a vehicle computer model therein. The controller is programmed to determine a rear side slip angle of a vehicle computer model[[,]]; when the rear side slip angle is greater than a threshold, determine a look ahead scale factor[[,]]; when the rear side slip angle is greater than the threshold, increase a look ahead point as a function of the look ahead scale factor[[,]]; ~~determining~~ determine a steering wheel angle input to the computer model by comparing the look ahead point and the intended path[[,]]; [[and]] operate the computer model with the steering wheel angle input[[,]]; and generate an output in response to the vehicle model and the initial steering wheel input or the first steering wheel input.

Please also amend original paragraph 0010 (paragraph 0011 as published) in the specification as hereinafter indicated.

> [0010] One advantage of the invention is that useful information may be obtained from vehicle models to allow vehicle designers to assess various vehicle designs in various limit-seeking [[an]] and

> aggressive maneuvers. This, advantageously, will reduce the overall costs of development of the vehicle. That is, if more accurate information can be obtained using vehicle models, fewer prototypes will be built to test various designs.

Please also amend original paragraph 0022 (paragraph 0023 as published) in the specification as hereinafter indicated.

> [0022] Referring now to Figure 2, a simulation system 30 is illustrated. Simulation system 30 has a computer 32 that has an input device 34 and an output device 36 coupled thereto. Computer 32 may be various types of computers including a main frame computer, [[or]] a personal computer, or a network personal computer. Input device 34 may include various types of input devices for inputting various information such as a keyboard, a mouse, or a trackball, or other types of information such as complete files as in a CD-ROM or other information stored within a memory.

Please also amend original paragraph 0029 (paragraph 0030 as published) in the specification as hereinafter indicated.

> [0029] Referring now to Figure 4, a method of controlling a vehicle model in understeer is illustrated. In step 70, the driver model looks ahead to find the vehicle path 52. If the vehicle is "on target", step [[72]] 74 is executed. In step 72, the vehicle is "on target" if the vehicle will follow a desired path within the look ahead range. If the vehicle will follow the desired path based upon the steering wheel input and various other inputs to the vehicle, no steering wheel change is provided in step 74. In step 76, the time of the vehicle model is incremented and then step 70 is again executed. In step 78, a new current steering wheel angle (SWA_current) based on the size of the error between the look ahead point and the desired path is determined. In this step, a previous or initial steering wheel angle is determined from a previous loop, as will be described below. This step forms a plurality of periodically determined steering wheel angle values. If the vehicle is not understeering, step 82 is executed. In step 82, the vehicle response is determined. The vehicle response in this embodiment is determined by the yaw acceleration which is normalized by the steering wheel angle. Of course, those skilled in the art will recognize various types of vehicle responses may be used. In step 84, the vehicle response, such as the normalized yaw acceleration, is compared to a threshold. If the normalized yaw acceleration is greater than a threshold and the absolute value of the steering wheel angle from step 78 is not increasing,

step 86 is executed in which the steering wheel angle computed in step 78 is used and the plowing condition flag is set to false. Then, step 76 is executed.

Please also amend original paragraph 0032 (paragraph 0033 as published) in the specification as hereinafter indicated.

[0032] Referring now to Figure 5, a method for operating the vehicle model during ~~understeer~~ oversteer is illustrated. In step 100, a rear side slip angle is determined. As mentioned above, the side slip angle is determined as function of the lateral vehicle velocity and the longitudinal vehicle velocity. The present system compares the rear side slip angle to a threshold such as 15° as is used in the present invention. If the rear side slip angle is not above 15°, step 102 is executed in which no change to the look ahead distance of the vehicle model is performed. That is, an unscaled look ahead factor is used. The system continues in step 104 in which the vehicle model is operated with the look ahead path. In step 106, if the vehicle is on the look ahead path, no steering wheel angle change is performed in step 108.

Please also amend original paragraph 0033 (paragraph 0034 as published) in the specification as hereinafter indicated.

[0033] Referring back to step 106, if the vehicle is not on target, step 110 is executed in which a new steering wheel angle (SWA_current) is determined based on the size of the error between the look ahead point and the intended path. After step 108 and 110, step 112 is executed in which the next time increment is provided to the vehicle model. Referring back to step 100, if the rear side slip angle is greater than the threshold (which in this case is 15°), step 114 is executed. In step 114, the look ahead distance is increased by a scale factor (SF). In the present example, a scale factor is determined that is exponential in value. That is, the absolute value of the rear side slip angle (SSR) is multiplied by a constant (K), such as [[.02]] 0.02. This scale factor will be multiplied by the look ahead distance to increase the look ahead distance of the vehicle model. The new look ahead distance is used in step 104 to find the path. By providing the increased look ahead distance, the vehicle computer model generates useful results.

Lastly, please also amend original paragraph 0039 (i.e., the Abstract) in the specification as hereinafter indicated.

> [0039] A simulation system (30) for simulating an operation of an automotive vehicle includes an input (34) providing vehicle information and path information and a controller (38) having a vehicle computer model therein. The controller (38) is programmed to determine a rear side slip angle of a vehicle computer model[[,]]; when the rear side slip angle is greater than a threshold, determine a look ahead scale factor[[,]]; when the rear side slip angle is greater than the threshold, increase a look ahead point as a function of the look ahead scale factor[[,]]; ~~determining~~ determine a steering wheel angle input to the computer model by comparing the look ahead point and the intended path[[,]]; [[and]] operate the computer model with the steering wheel angle input[[,]]; and generate an output in response to the vehicle model and the initial steering wheel input or the first steering wheel input.